

# Claims

- [c1] A method for inducing apoptosis in cancer cells, the method comprising the steps of contacting the living cells with a tyrosine kinase inhibitor and a histone deacetylase inhibitor.
- [c2] The method of claim 1 wherein the tyrosine kinase inhibitor is imatinib mesylate.
- [c3] The method of claim 1 wherein the histone deacetylase inhibitor is suberoylanilide hydroxamic acid.
- [c4] The method of claim 1 wherein the tyrosine kinase inhibitor is imatinib mesylate and the histone deacetylase inhibitor is suberoylanilide hydroxamic acid.
- [c5] Method of claim 1 wherein the living cells are exposed to the tyrosine kinase inhibitor and the histone deacetylase inhibitor for about 48 hours.
- [c6] Method of claim 1 wherein the cancer cells are leukemia cells.
- [c7] Method of claim 1 wherein the cancer cells are imatinib mesylate refractory.

- [c8] A method of potentiating a cytotoxic effect of a tyrosine kinase inhibitor-based treatment comprising the steps of contacting target cells with a histone deacetylase.
- [c9] The method of claim 8 wherein the tyrosine kinase inhibitor-based treatment comprises imatinib mesylate.
- [c10] The method of claim 8 wherein the histone deacetylase inhibitor is suberoylanilide hydroxamic acid.
- [c11] Method of claim 8 wherein the target cells are leukemia cells.
- [c12] Method of claim 8 wherein the target cells are imatinib mesylate refractory.
- [c13] A chemical composition for inducing apoptosis in cancer cells comprising a tyrosine kinase inhibitor and a histone deacetylase inhibitor.
- [c14] The chemical composition of claim 13 wherein the tyrosine kinase inhibitor is imatinib mesylate.
- [c15] The chemical composition of claim 13 wherein the histone deacetylase inhibitor is suberoylanilide hydroxamic acid.
- [c16] The chemical composition of claim 13 wherein the tyrosine kinase inhibitor is imatinib mesylate and the histone

deacetylase inhibitor is suberoylanilide hydroxamic acid.